CS ATRB
PMA209 Overview
1 Sept 2004

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Agenda

- PMA209 Technology Needs
- PMA209 Organization
- PMA209 Products
- CAMP

PMA209 Tech Needs

PMA-209 Air Combat Electronics: PMA-209 Air Combat Electronics provides common products, acquisition and support for NAVAIR Avionics in the following Areas: Communication, Navigation and Identification, Mission Avionics and Flight Operations. All technologies related to these area's are of interest to PMA-209, specifically:

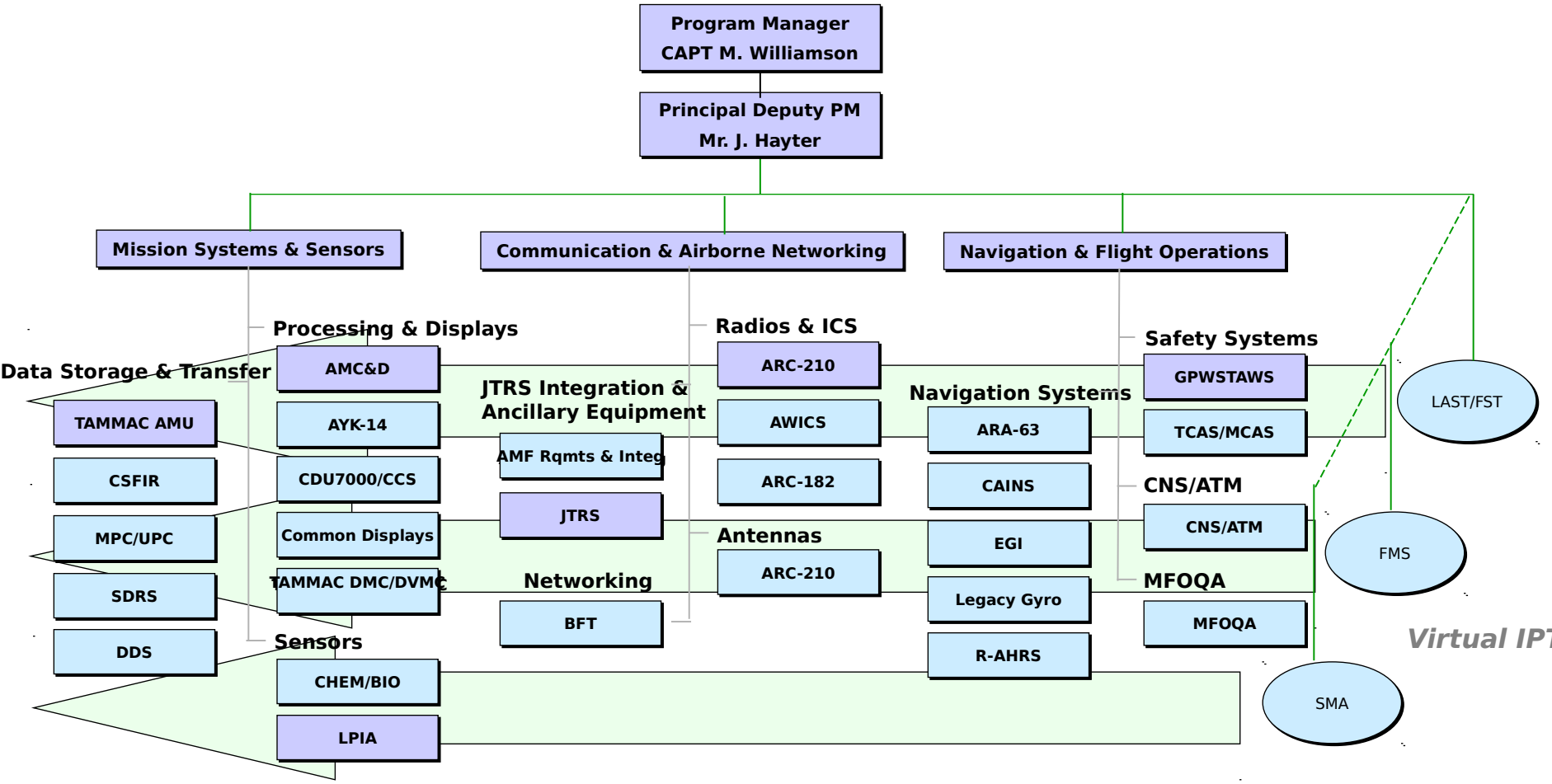
1. Aircraft radio technologies that decrease system physical volume, power consumption, heat generation or antenna footprint while maintaining current performance levels (i.e. waveforms, range, efficient and linear power amplifiers).
2. Improved techniques to use the existing RF bandwidth to increase throughput efficiencies for the transmission of tactical imagery, tactical data networks, command voice networks, and video.
3. Advance technology for JTRS Ancillary Equipment technology (power amps, antennas).
4. Aircraft antenna technologies including low cost, wide bandwidth, interference canceling and adaptive, sectorized antennas (omni directional receive, but blank out transmitting to a sector) that can be used simultaneously by different on-board systems.
5. Integrated and Federated, Open Systems hardware and software Architectures technologies for avionics to include: Air Data Computer, Communication Functions, flight management, Data Link processing, high speed data network switches, digital maps, navigation, and maintenance prognostics/diagnostics.
6. Proposals to incorporate higher accuracy digital terrain (elevation errors less than 15 ft) and obstacle data (50 ft and higher) into aircraft digital map systems (DMS), such as the Tactical Aircraft Moving Map Capability (TAMMAC).
7. Altimeter/Sensor technologies with forward-looking capability that provides

CSATRB Tech Needs

PMA-209 Air Combat Electronics Tech Needs continued:

8. Avionics Data Storage and playback technologies that provide improvements in one or more of the following areas: lighter weight, smaller size, lower power, larger data capacity, higher access speed or ability to be secured for classified data with improved loading and downloading techniques. Data storage, PCMCIA and playback technologies can include but are not limited to: magnetic memory, helical scan videotape, hard disk (a la Tivo), solid state, etc…
9. Predictive, obsolescence analysis tools to allow government product managers to understand as early as possible when a product will no longer be supportable. Proactive/predictive analysis capability that allows a manager to predict early when a system will no longer be supportable allows time for budget requests to get funding to replace obsolete hardware.
10. Reduced size, high accuracy inertial navigation systems/components (gyros, accelerometers, Micro-Electrical Mechanical Systems (MEMS) technology).
11. Advancements in aircraft cockpit display technology to include: projection technology, LED for backlighting of displays, OLEDs and AM OLEDs.

AIR COMBAT ELECTRONICS



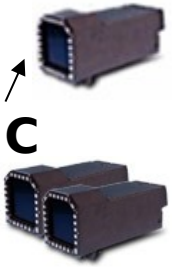
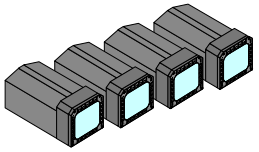
LAST/FST – Legacy Avionics Support Team/Fleet support Tea
FMS – Foreign Military Sales
SMA – Software Management Activity

TAMMAC

Digital Map Computer (CP-2414A/A)

Advanced Memory Unit (MU-1119A/A)

AMC&D –Advanced Mission Computers & Displays

	F/A-18E	F/A-18F	AV-8B	F/A-18C/D	T-45
Fibre Channel Network Switch (FCNS)	Lot 26 and u	Lot 26 and u			
Mission/Display Processors			Mission Processor	Mission Processor	Mission/Display Processor
Advanced Multi-purpose Displays (AMPDs)		Lot 26 and up	Advanced Multi-Purpose Color Display	Advanced Multi-Purpose Color Display  C D	

LPIA

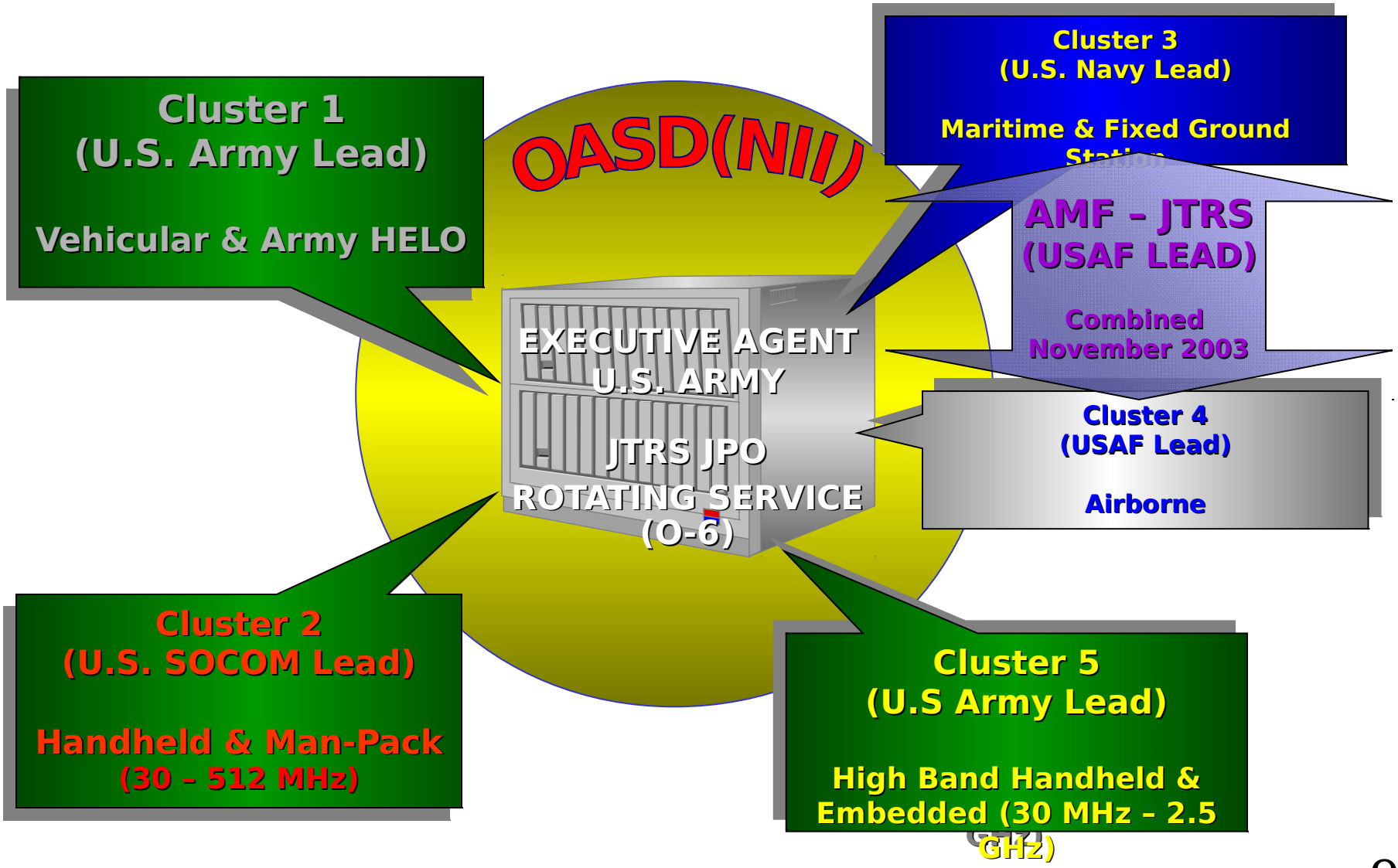
RT-1805/APN

SIZE: 3.13 X 3.50 X 8.00 in.
WEIGHT: 4.1 lbs
POWER : approx. 19 watts, 115 VAC
FREQUENCY: 4.2 - 4.4 GHz
ALTITUDE RANGE: 0-35,000 ft
ACCURACY ≤ 5,000 ft : Greater of 2 ft or 2%
> 5,000 ft : 1% + 50 ft
ATTITUDE: Pitch: ± 30 deg. < 5,000 ft;
Roll: ± 50 deg. < 5,000 ft
DETECTABILITY: 1.2 nm @ 1,000 ft
JAMMING: ≥ - 65 dBm (<5,000 ft and roll or pitch < 25 Deg.)

FEATURES:

- MIL-STD-1553B
- Compatible with existing Height Indicators
- Compatible with existing Antennas

JTRS:"Cluster" Designation



COMM: ARC-210 Family

RT-1794(C) / 1824(C)

VOLUME: 232.4 IN³
WEIGHT: 12.2 LBS
POWER: 10 W-AM/15 W-FM

CAPABILITES
SAME AS RT-1556B, PLUS:
4-CHANNEL SCAN
BLOS (EMBEDDED)
- **DEDICATED 5kHz & 25kHz SATCOM**
- **25kHz AC & DC DAMA SATCOM**
- **5kHz DAMA SATCOM**

VMF MESSAGES
EMBEDDED LINK 4A & 11
EMBEDDED COMSEC
MLVS

RT-1794(C): DATA UP TO TOP SECRET

RT-1824(C):
- **DATA UP TO SECRET**
- **PLAIN TEXT DATA**
- **SIMULTANEOUS VOICE & DATA IN VMF**
- **DAMA-A HW COMPATIBLE**

RT-1556B

VOLUME: 274.4 IN³
WEIGHT: 12.2 LBS
POWER: 10 W-AM/15 W-FM

CAPABILITES
COMBINED UHF/VHF (30-400MHz)
EP (HQ,HQ II, SINCGARS)
8.33 kHz
MARITIME CHANNELS
DEDICATED GUARD
COMSEC COMPATIBLE

LESS FUNCTIONALITY
- **NO COMSEC, DAMA, VMF**

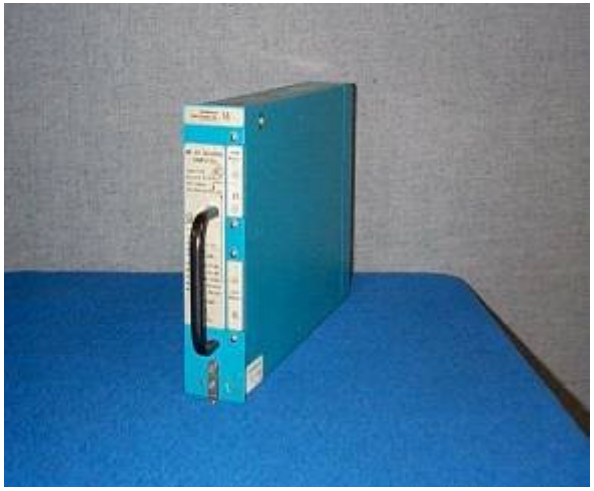
LOWER COST

Warrior

VOLUME: 232.4 IN³
WEIGHT: 12.2 LBS
POWER: 10 W-AM/15 W-F

CAPABILITES
SAME AS RT-1794(C) / 1824(C), PLUS:
VDL-3 CAPABLE
SATURN CAPABLE
EVOLVING MIL-STDS CAPABLE
- **DAMA SATCOM**
- **VMF**

FLIGHT OPS GPWS/TAWS PRODUCTION HARDWARE



Honeywell Commercial GPWS and TAWS

Cubic Defense Systems GPWS

BAE Commercial HIADC (auxiliary equipment)

Rockwell Commercial MFD (auxiliary equipment)

Specialty Enterprises VGS (auxiliary equipment)

Core Avionics Master Plan (CAMP 2004)

Introduction:
- **OPNAV Guidance**
- **Functionality Roadmaps**
- **PMA Utilization**

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CAMP Objective & Utility

- Provides Situational Awareness to Program Offices
  - Functionality / capability evolution
  - Associated guidance, mandates & milestones
- Not a Requirements Document
- Corollary to Strike and Helicopter Master Plans
- Aligns with Capability-based acquisition
- Supports Transformation and Network Centricity
- Promotes Cost-wise Readiness & Modernization

Core Document

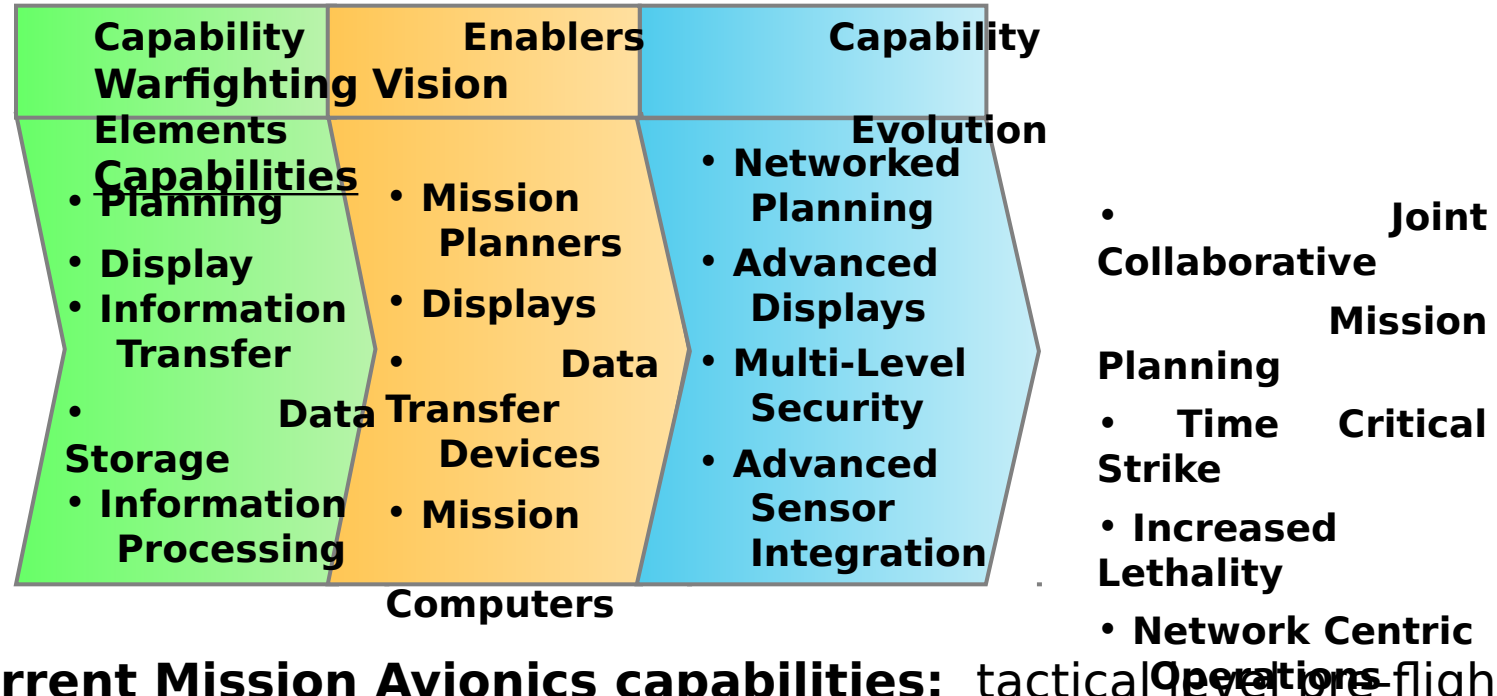
- Objective - tool for increased awareness
- Background - traceability to Joint and DoN vision, NCW
- Core Avionics defined - Core and Unique systems
- Master Plan Application & Utilization – policy guidance
  - Requirements: Shift from platform focus to capabilitie
    - Interoperability - military and civil
    - Science & Technology - effective transition, FNC's
  - Resourcing: Modernization, Fleet interface, Avionics C
  - Acquisition: Evolutionary models
    - Open Systems Architecture
    - Multi-functionality, Dual Use Technology
    - Commonality first, Unique if business case support
  - Sustainment: Full Life Cycle support
    - Combat Readiness
    - Obsolescence management

Appendices

- Appendix A
  - Introduction (roadmap conventions)
  - Networks
  - Voice Communications
  - Navigation
  - Cooperative Surveillance and Combat ID
  - Flight Safety
  - Mission Avionics
- Appendix B
  - Glossary
- Appendix C
  - Points of Contact

Mission Avionics

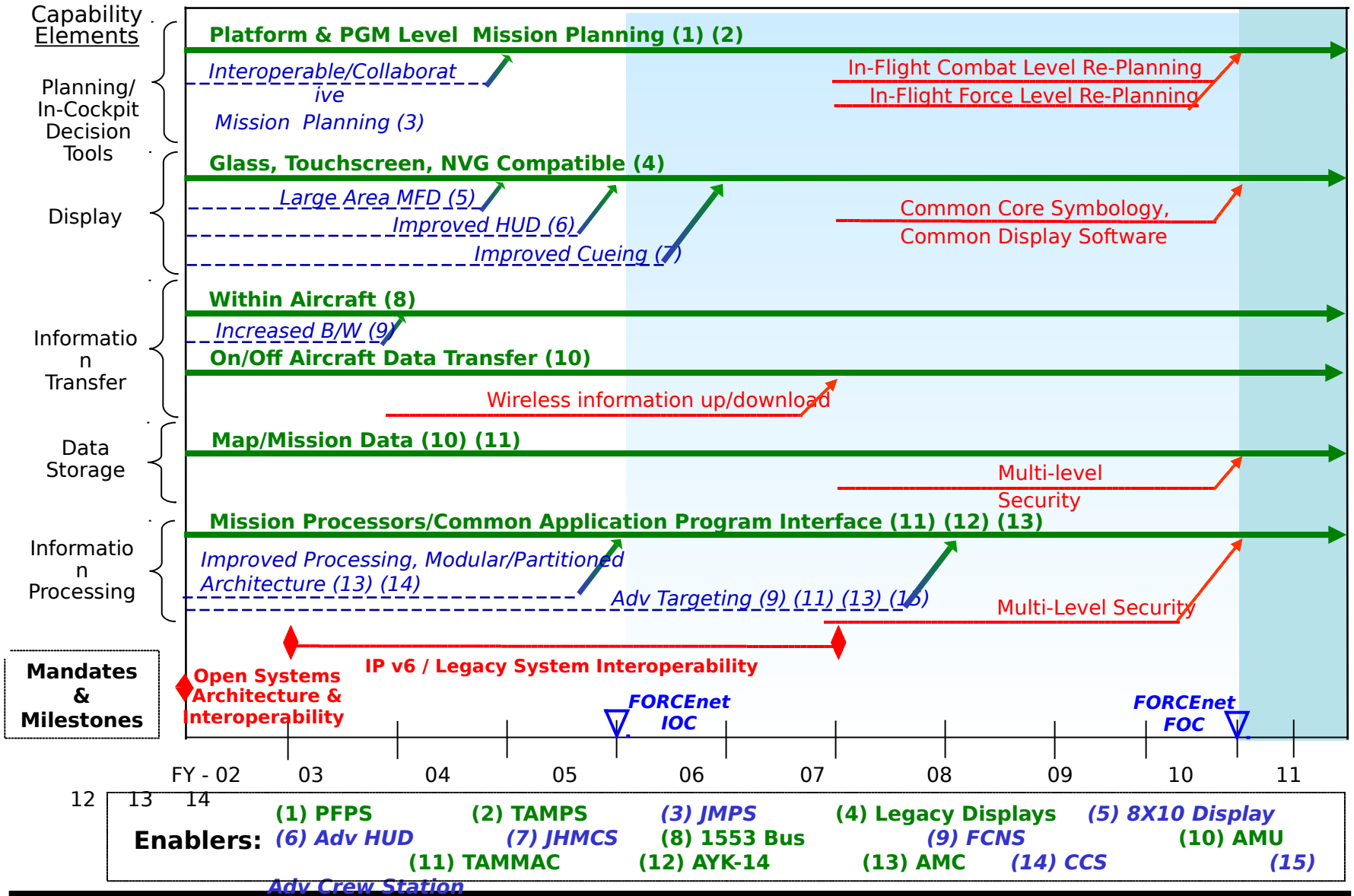
Networks Mission Avionics Evolution:



Current Mission Avionics capabilities: tactical level pre-flight planning,
post-flight debriefing, limited moving target precision engagement

Future Mission Avionics capabilities: Joint collaborative planning, in-flight
re-planning/adjustment, improved processing, improved sensors and

Mission Avionics



Information Management Systems

Enhanced Mission Effectiveness

CAMP in relation to NCDP

CAMP Roadmaps:

- Driver: (N78) Corollary to Strike and Helicopter Master Plans
- Purpose: Establish avionics mgt guidance to SYSCOMs
- Utility: Tool for platform PM's to use to integrate avionics capa
- Development: Commodity PMs developed, OPNAV signed out

Naval Capability Development Process Roadmaps:

- Driver: (OPNAV, AIR 1.0) Extension of NCDP
- Purpose: Align NAVAIR program activity with SP-21 elements
- Utility: Defend SYSCOM activities in meeting USN requirement
- Development: Top down. Warfighting capability element laid
  to show evolving product enhancement contributions